

Chapter 2

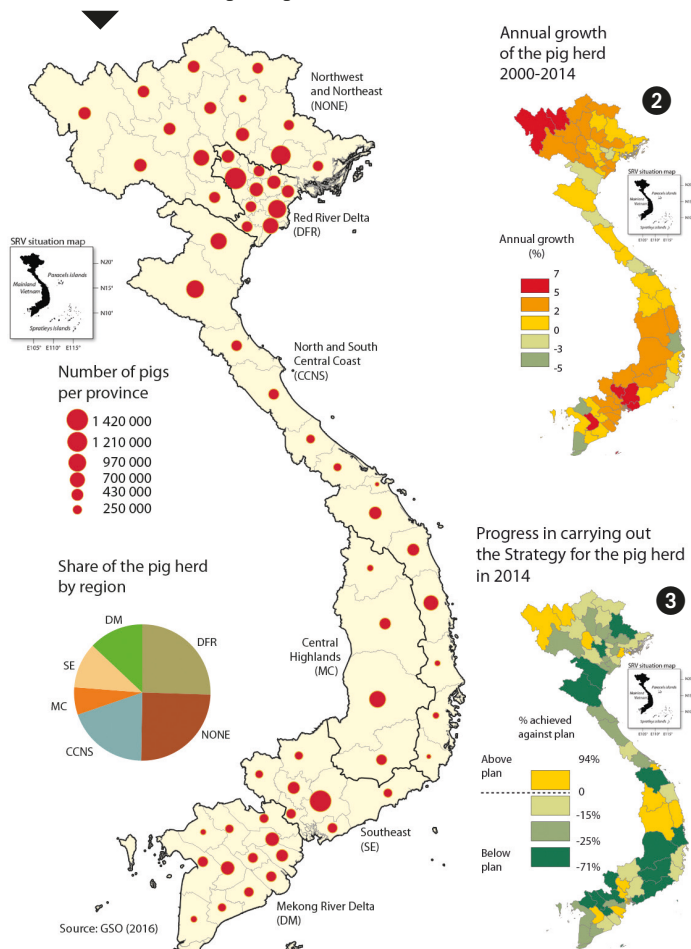
Statistics on livestock production in Vietnam

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Concentrated monogastric livestock production

1. Distribution of pigs by province in 2015
2. Growth in pig headcounts between 2000-2014
3. Difference between the actual pig herd in 2014 and the strategic target for 2020



Relocation of pig herds underway

During the 1995-2005 period, the Red River Delta, Mekong River and coastal regions saw a sharp rise in livestock numbers, concentrating more and more production in confined and densely populated areas. From 2005 onwards, the pig population stabilized, with the exception of mountainous and hilly areas where herds continued to grow. The government is seeking to continue this relocation dynamic, notably through the 2014 livestock restructuring act.

Pig herd spreading into upland areas

Between 2005 and 2015, the highland and southeast regions saw considerable growth, with the pig population moving from 31% to 43% of the national herd. The southeast region has witnessed the strongest growth, with 900,000 heads in 1995 rising to nearly 3 million in 2015. If these trends continue, the Southeast region should outpace the Mekong Delta by 2020. However, these trajectories are not set in stone. The northern mountainous region was expected to surpass the Red River Delta, but since 2013, there has been an upward trend in the Delta. This upturn is taking place against a backdrop of enormous demand for meat in China. Between 2015 and 2016, China imported massive numbers of pigs from Vietnam. However, since the beginning of 2017, the Asian giant has closed its borders, triggering an unprecedented crisis in the Vietnamese pork sector.

A less dynamic pig population

Between 1994 and 2016, the pig population grew from 16 million to nearly 28 million heads. This growth accelerated substantially between 2000 and 2005, with the addition of 7 million heads. However, between 2006 and 2016, the population stabilized at between 27 and 28 million heads, but the production of pig meat increased from 2.5 to 3.5 million tons. This increase is another indicator of the industrialization of pig farming.

A pig population concentrated in the deltas

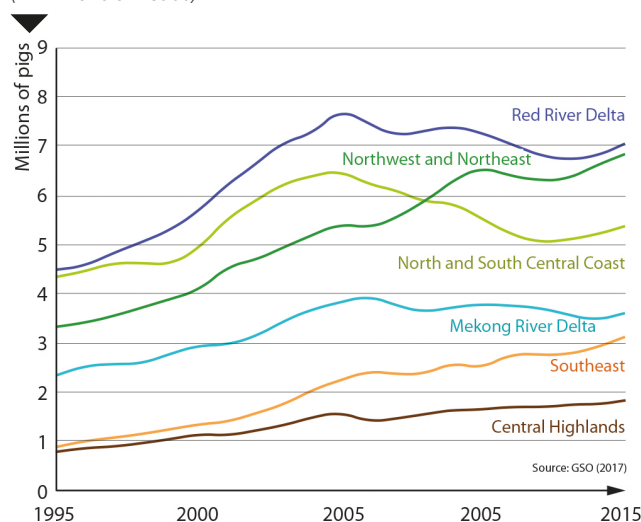
The distribution of the pig population mirrors the distribution of the human population. Until just recently, a small pen with one or two pigs was found behind every house. This geographic match is blurring as the sector continues to industrialize. The increase in pig production has led to a partial relocation of production to outlying regions, in hilly and mountainous areas. Several significant trends emerge from the figures for the 1995-2015 period.

Local pigs in the province of Điện Biên Phủ



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Evolution of the number of pigs per region between 1995 and 2015 (in millions of heads)

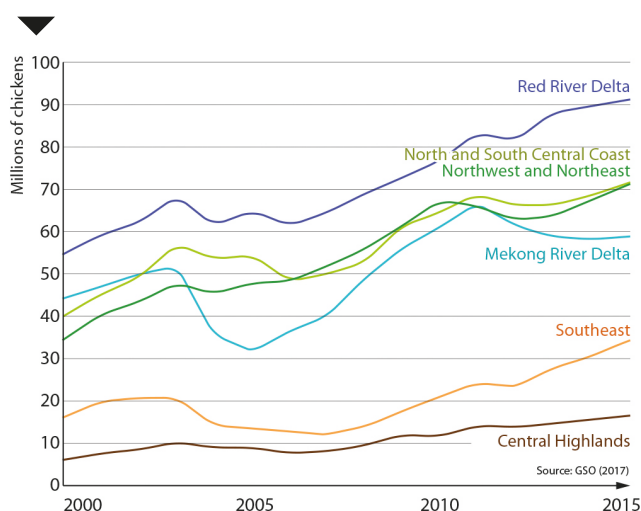


Duck farm near Bến Tre (Mekong Delta)



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Evolution of the number of poultry per region between 1995 and 2015 (in millions of heads)



Redevelopment under industrial control in the south

It would take nearly five years to return to a similar level of production, particularly in the Mekong Delta and the Southeast region. In parallel, the Southeast region saw the strongest growth over the 2010-2015 period, notably the provinces of Đồng Nai, Lâm Đồng and Bình Phước. It is in these regions that the government's livestock strategy for 2020 appears to be the most effective. This growth has particularly relied on the emergence of intensive farms that are well integrated into the agro-industrial fabric woven around the large Ho Chi Minh City market.

Small farmers still firmly anchored in the north

In the north, the provinces of Thái Nguyên and Điện Biên Phủ had interesting growth rates during the 2000-2014 period. Poultry farming in these regions is based on small family holdings. There is industrial development, but it is more limited in districts like Ba Vì, with former state farms reconverted into private holdings. In the Red River Delta, small intensive farms are emerging. They are using a model combining garden (*vườn*) + pond (*ao*) + small livestock farming (*chúồng*), also known as the VAC model. Even in the north, smallholder livestock farms are gradually being transformed by intensification and industrialization. However, the scale of production has retained more of a family character in the north.

A growing poultry flock

Between 2000 and 2015, the poultry flock grew from 196 million to over 341 million heads. Since the first agriculture census in 1994, the number of poultry farmers has continuously increased. There are now over 10 million rural households with at least one chicken or duck. The large majority of poultry are raised on small village farms. This sharp increase is concentrated in the north of the country in the Red River Delta, and in the coastal and highland regions.

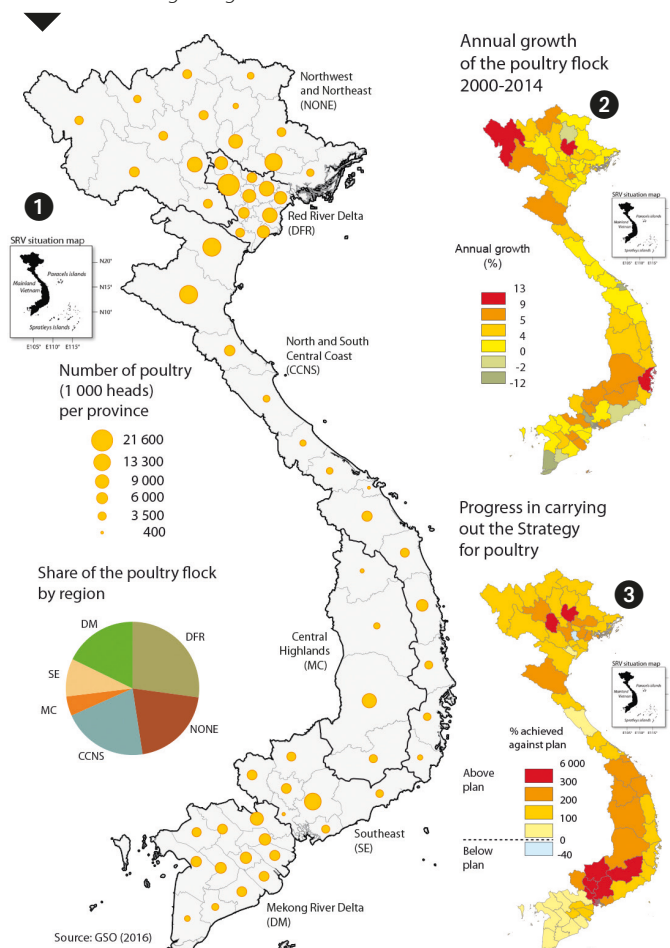
Poultry farming close to water and population centers

Poultry farming and duck farming are not located in the same areas. Like pig farming, poultry farming is developing around consumption centers. Human population densities largely account for this distribution. Duck farming is developing in combination with rice cultivation. The ducks weed and naturally fertilize rice paddies. Duck farming consequently is more developed to the west of the Red River Delta and in the Mekong.

Is poultry farming risky?

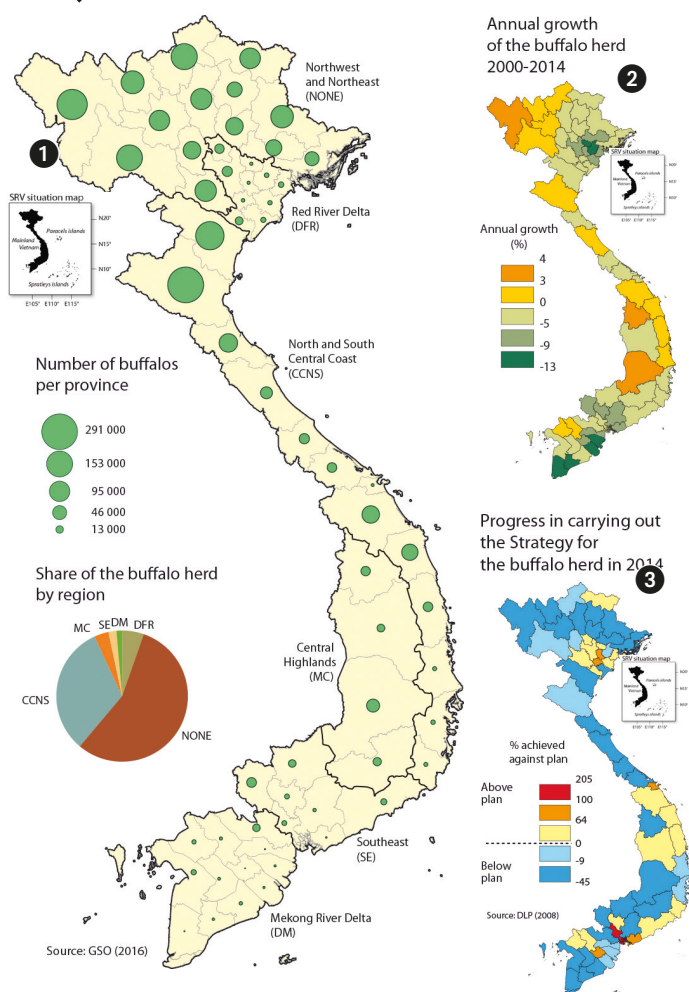
As a whole, the poultry flock follows the spatial distribution of the human population, which can be problematic. In January 2004, the H5N1 strain of avian influenza appeared in the poultry sector. Thailand also was affected. The deaths of three people led to systematic culling, particularly on free-range farms and for ducks. The flock collapsed. In 2011-2012, poultry production was subjected to a new reduction in the south. The flock declined in the Mekong region under the effect of preventive culling.

1. Distribution of poultry by province in 2015
2. Growth in poultry headcounts between 2000-2014
3. Difference between the actual poultry flock in 2014 and the strategic target for 2020



Ruminant production confronted by space limitations

1. Provincial distribution of buffalo in 2015
2. Growth in the number of buffalo heads between 2000-2014
3. Difference between the actual buffalo herd in 2014 and the strategic target for 2020



The buffalo: an animal emblematic of the north

In popular culture, the buffalo is the emblem of Vietnam. It is associated with the image of rice fields being worked. Buffaloes need water. Rice plains, watercourses and flood-prone areas are ideal for them. Buffaloes are favoured over cattle due to their strength and ability to adapt to wetland environments. Although they adapt well to deltas, it is a challenge to feed them in such densely populated areas. The vast majority of agricultural land is devoted to rice paddies, and no land is therefore available for pastures. When rice is growing, buffaloes must content themselves with grazing along the embankments. Sometimes the grass runs out, and the buffaloes are then sent to wooded hills or mountain areas. The geography of buffalo production shows a distribution concentrated in the northern part of the country, particularly in mountain areas. The province of Nghệ An has the largest buffalo population of Vietnam.

Working with a buffalo in the rice fields of Mai Sơn



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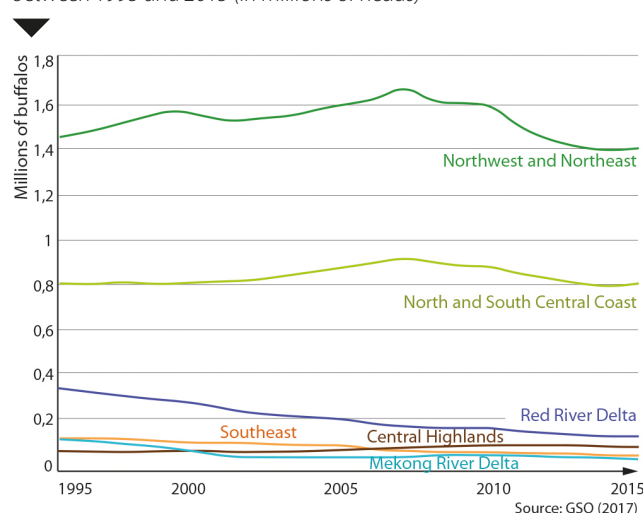
A declining buffalo herd

Between 1990 and 2015, the buffalo population declined slightly, from 2.8 million to 2.5 million heads. Up to the early 2000s, the buffalo herd grew by tens of thousands of heads per year. From 2005-2006, the downward trend in the herd was confirmed, even in mountainous regions. Since 2014-2015, this decline has halted in the highlands and coastal regions.

What is the future of buffalo in Vietnam?

The decline in buffalo production is largely due to the development of small tillers for rice farming. Gas-powered engines are competing with animal draught power. Moreover, the buffalo meat sector is competing with imports from India. It is difficult to know whether the buffalo population will be maintained at the national level in the future. However, there is resistance in hard-to-reach regions, notably in the north of the country. The possession of one or several buffalo remains an outward sign of wealth. Some families own large numbers of animals. The buffalo remains the symbol of a traditional society that, despite the economic growth and modernization of Vietnamese society, continues to endure.

Evolution of the number of buffalo per region between 1995 and 2015 (in millions of heads)



Poverty-reduction program cows



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A herd located along the coast and in the mountains

Nearly half the herd are concentrated in the coastal and central regions. These regions benefit from a lower human population density. The provinces around major cities also have larger cattle herds, due in particular to fattening farms. The largest herd increases are in the Mekong Delta.

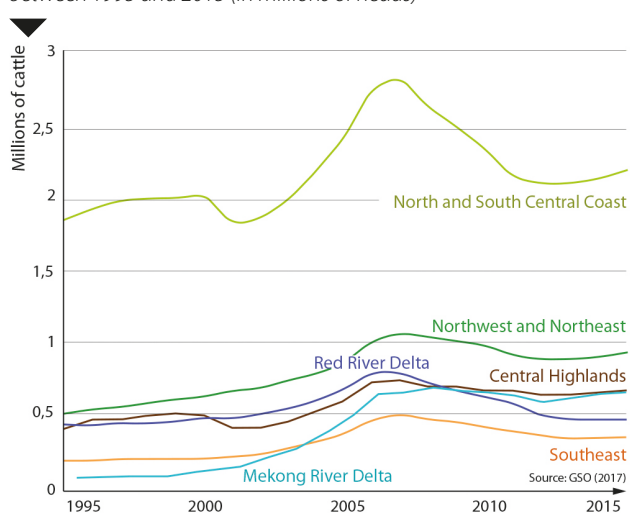
Cattle fattening in the deltas

In the country's two major deltas, medium-size family farms are developing cattle fattening activities. Hoping to diversify their sources of income, these families see cattle production as a means to develop a profitable farming activity near major consumption centres. The delta regions benefit from having a considerable amount of rice straw that can be used as livestock feed.

Intensification of fodder production

The intensification of fodder systems is a potential option for the development of cattle farming. Today, few small farmers dare to devote their land to cultivating elephant grass. Only dairy farmers are attempting crop specialization. The dairy herd accounts for barely 5% of the total number of cows in the country. Fodder crops are frequently grown in spare spaces between fields, by the side of a road and along river banks, and serve more for agricultural diversification than farm specialization.

Evolution of the number of cattle per region between 1995 and 2015 (in millions of heads)



Growth of the cattle herd since 1990

In contrast to buffalo, cattle have increased significantly in number, rising from 3.6 million heads in the early 1990s to nearly 5.2 million heads today. A peak was reached in 2006 with 6.7 million heads. The number has decreased since. This sharp drop of nearly 1.6 million heads in about six years has never been explained.

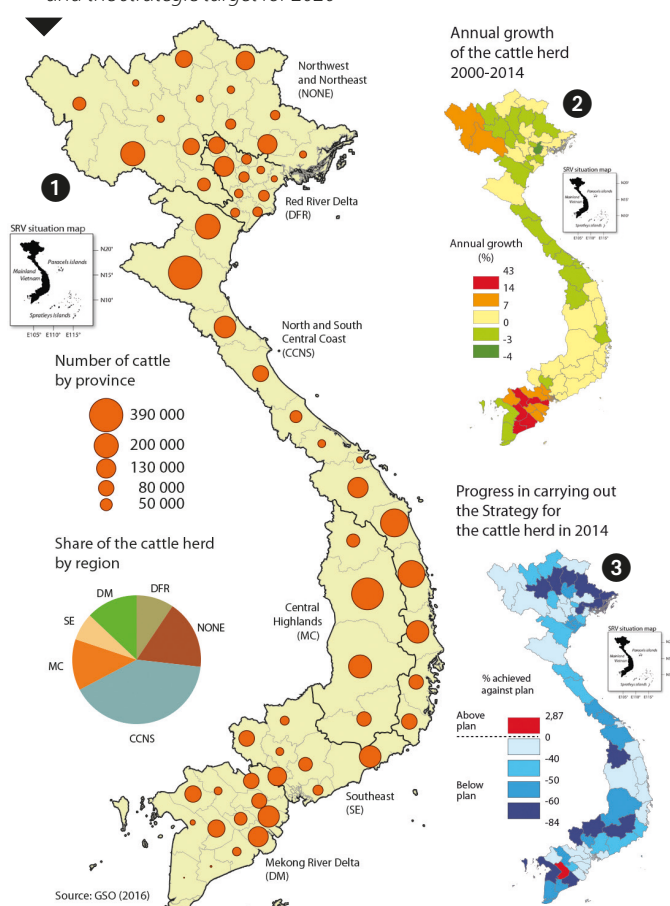
A demand-driven herd but under constraints

Vietnam is importing more and more beef from Australia, the United States and, more recently, India, because increasing demand is not being met by the development of the local sector. A local sector does exist but it faces constraints, in particular a lack of space. Ideally, local people communities could benefit from this recent growth in beef consumption, but Vietnam has never been known for beef farming. It is difficult to develop a fattening activity to enable the country to be self-sufficient with regard to beef. Human population densities are high and every scrap of land is under cultivation, leaving little room for beef farming.

Lack of recognition of extensive farming

Most cattle livestock currently are mobile. Livestock farmers use collective pastures and their animals eat the crop residues left in fields (maize stalks, cassava leaves), but when fields are under cultivation, animals must move towards the forests. Local government administrations have little interest in grazing areas. From a legal land use perspective, pastures do not exist, and this livestock farming is frequently associated with poverty reduction programs.

1. Provincial distribution of cattle in 2015
2. Growth in the number of cattle heads between 2000-2014
3. Difference between the actual cattle herd in 2014 and the strategic target for 2020



2020 livestock strategy: a policy response

Market liberalization and protectionist measures

Between 2006 and 2008, several phenomena had an impact on the livestock sector in Vietnam. First, as a member of the WTO, Vietnam could no longer control food prices. Prices were supposed to be determined by the markets. Then, between 2007 and 2008, the global economic crisis triggered significant speculation on agricultural commodities markets, which led Vietnam to temporarily halt rice exports. Between 2009 and 2010, the economic crisis affected the Vietnamese banking system, causing a devaluation of the dong. Under these conditions, the Vietnamese livestock sector found itself confronted with a galloping growth in frozen meat imports (chicken and pork). The government rapidly decided to raise customs duties on the imported consignments. This increase in duties prevented the market from being flooded with low-cost products. However, they did not stop imported meat from entering the market. At the same time, MARD developed a strategy to restructure the livestock sector.

The 2020 livestock strategy

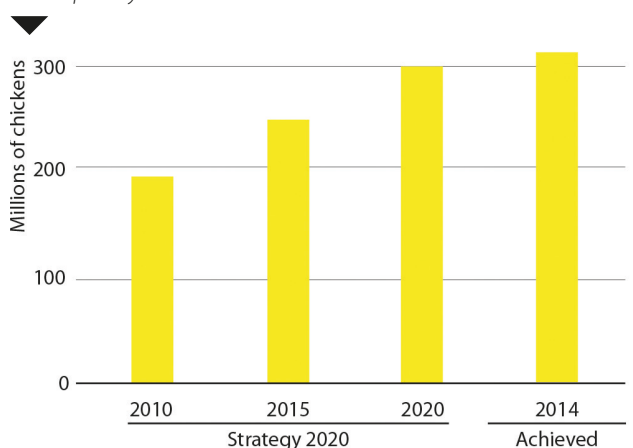
In early 2008, the prime minister approved Decision N°:10/2008/QĐ-TTg, the Strategy on Animal Breeding up to 2020. This decision profoundly changed the direction of agricultural development policy. The government took note of the strong competition on international markets and decided that the livestock sector should be rapidly industrialized to cope with international dumping and to satisfy domestic demand. The principle objective of the decision was to define the new work framework: "By 2020, the animal breeding industry will basically switch to commercial farm and industrial production in order to meet in priority domestic and export demands for quality foods." With this aim in mind, the livestock department fixed ambitious goals. Pig production was to increase from 27 to 35 million pigs, and poultry production from 180 to 310 million heads.

Objective of the 2020 strategy and achievement by 2014 for the pig herd



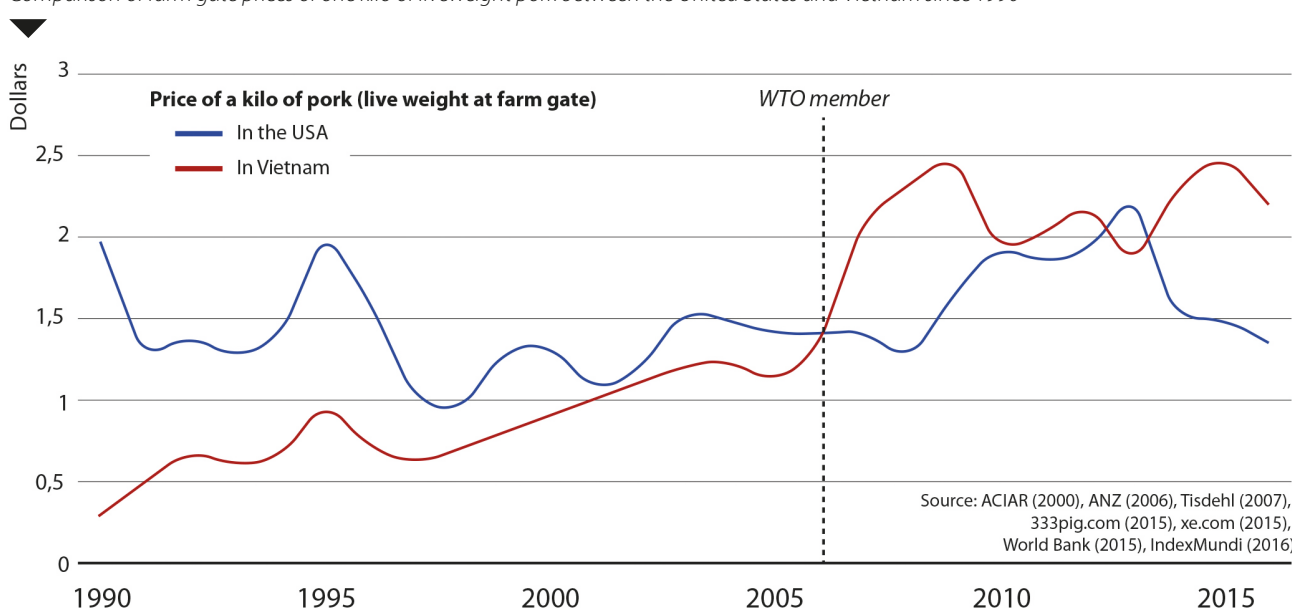
Source: DLP (2008), FAO (2017)

Objective of the 2020 strategy and achievement by 2014 for the poultry flock



Source: DLP (2008), FAO (2017)

Comparison of farm gate prices of one kilo of liveweight pork between the United States and Vietnam since 1990



Source: ACIAR (2000), ANZ (2006), Tisdahl (2007), 333pig.com (2015), xe.com (2015), World Bank (2015), IndexMundi (2016)

Are the 2020 objectives unreachable?

Is this strategy ambitious – or too ambitious? The country's capacity to meet its objectives were widely questioned. The first figures rapidly became available. For pigs, the sector was falling short on the various milestones in terms of animal numbers and meat production. While the government planned on a herd of 32 million heads by 2015, the pig herd was stagnating at less than 27 million heads in 2014. In contrast, for the poultry sector, the objectives were largely met and were even ahead of the schedule. In 2014, the sector had surpassed the 2020 goal. For the dairy sector, the situation was mixed. Production is growing but less rapidly than planned.

The sectoral objective of industrialization

It would obviously be simplistic to consider the livestock strategy for 2020 as a simple decision about production planning. A set of actors up and down the production chain were considered. According to the strategy, 50% of animal feed must be industrialized by 2020. Land must be set aside for the development of large industrial farms, and the value chains must better integrate production and industrialize. This is a sectoral strategy.

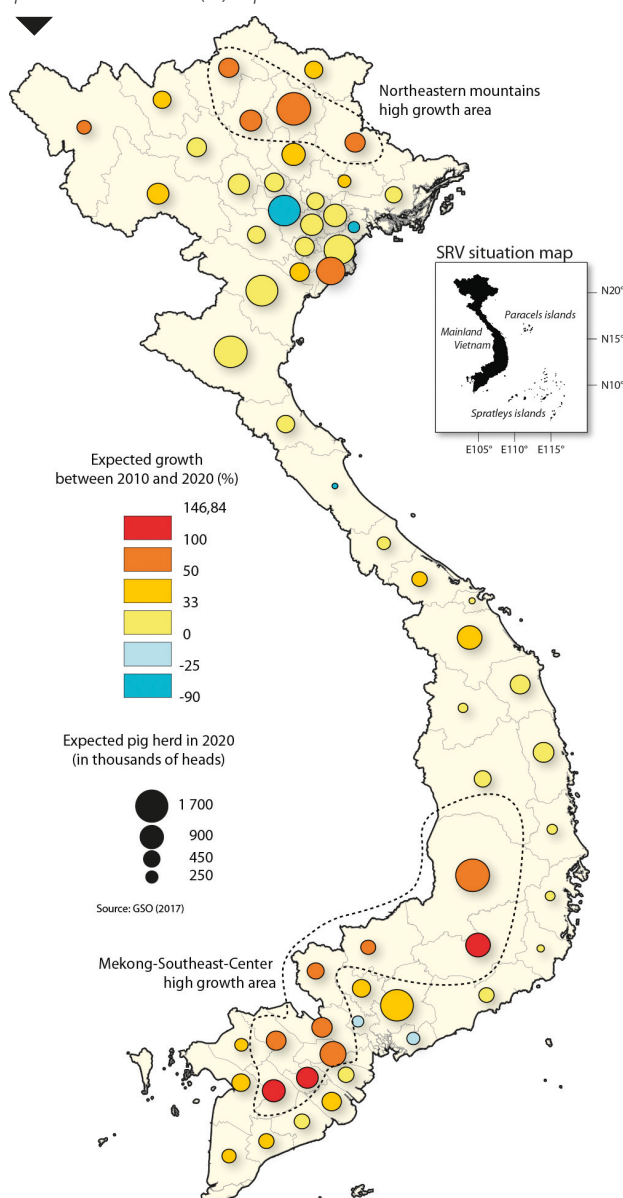
The 2014 livestock restructuring policy

In 2014, MARD passed Decision N° 984 approving the restructuring plan for the agriculture sector in which livestock plays an important role. This decision aimed to improve the value added of the sector while guaranteeing sustainable development principles. The first objective was to “gradually move livestock commercial farms (*chăn nuôi trang trại*) from areas with high human population densities (deltas) to regions with lower human population densities (mountains) by creating regions free of all animal diseases far from cities and dwellings.”

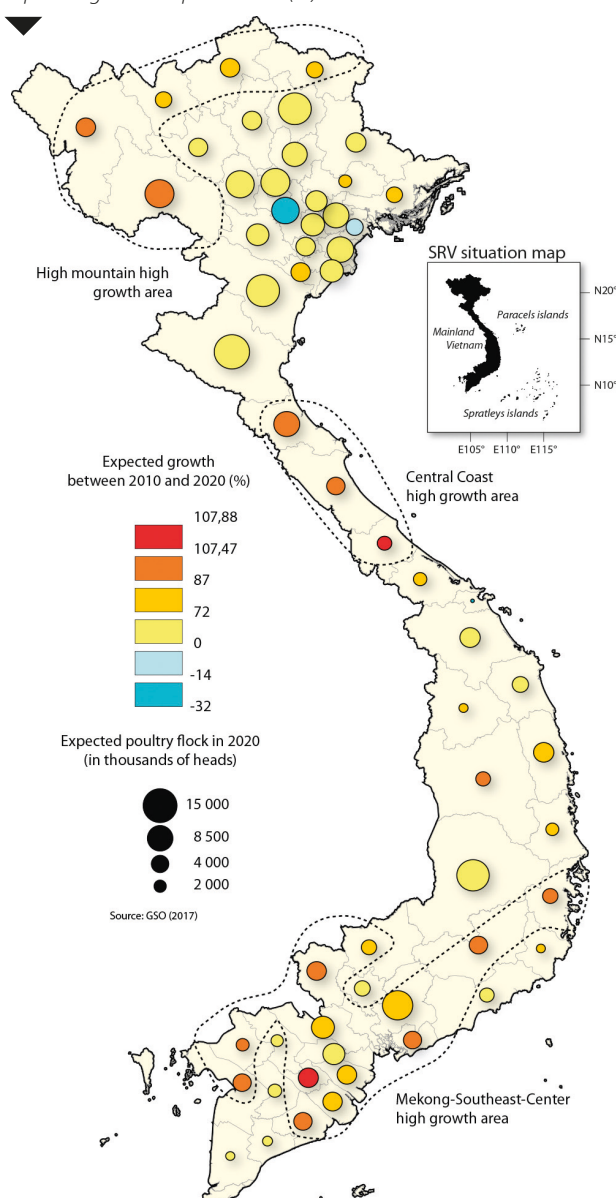
Towards areas for livestock production

In each location, livestock development areas were to be created in order to accommodate targeted investments. With this policy, the government is seeking to limit the development of industrial livestock farms close to residential areas. Applied at the local level, this policy is even attempting to change the regional geography of livestock production. Recent trends indicate that the 2020 livestock strategy and the restructuring policy have worked well. In 2018, the government adopted a new law on livestock development offering greater incentives for the development of more industrial models.

Pig production growth targets by 2020:
production increase (%) expected between 2010 and 2020.



Poultry production development objectives by 2020:
expected growth in production (%) between 2010 and 2020



The *trang trại*: a tool for agriculture development

What is a commercial farm (*trang trại*)?

The concept of a “farm” does not have the same meaning in Vietnam as it would in the United States or France. In the early 2000s, the Vietnamese government implemented a development policy known as the “commercial farm economy” (*kinh tế trang trại*). A *trang trại* is a large commercial farm whose production is largely intended for sale. Family farms involved in both subsistence and commercial farming are not entitled to call themselves *trang trại*. This name is granted to commercial farms whose turnover exceeds a defined threshold.

An often-misunderstood category

On the GSO website, data on commercial farms are the first to appear on the agricultural statistics page. An uninformed foreign expert could quickly confuse commercial farms with agricultural holdings and attribute the raw data presented to the category “Number of farms in Vietnam”. This situation is becoming increasingly apparent in international reports, which, in the interest of speed, only note the number of commercial farms and neglect the millions of farm holdings which have a livestock activity. It is essential to fully understand the scope of this definition.

The first definition of *trang trại* in 2000

In 2000, the government decided to define commercial farms according to the following criteria: total revenue, agricultural area and number of animals present on the farm. Several specialities existed: annual crops, perennial crops, livestock production, forestry, and mixed. In 2001, the country counted 61,000 farms which met these criteria (ARC, 2001).

Definition of farms according to MARD's Circular No. 27/2011/BNNPTNT of 2011

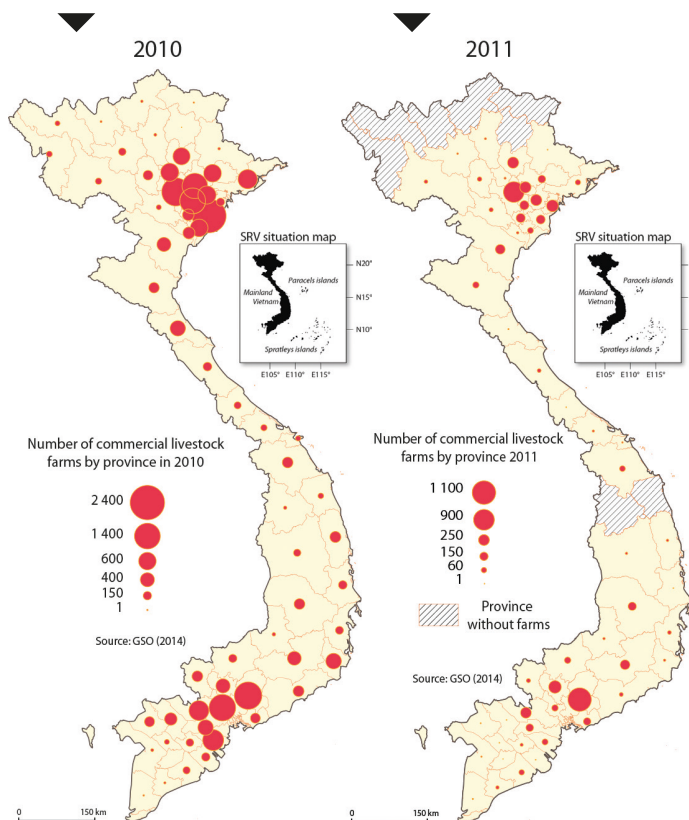
Farm type	North and Coastal region	South and Center
Annual crop Perennial crop Aquaculture	2.1 ha 700 million VND	3.1 ha 700 million VND
Forestry	31 ha 500 million VND	
Livestock	1 000 million VND	

An intensive pig farm in the district of Phù Đổng (Red River Delta)



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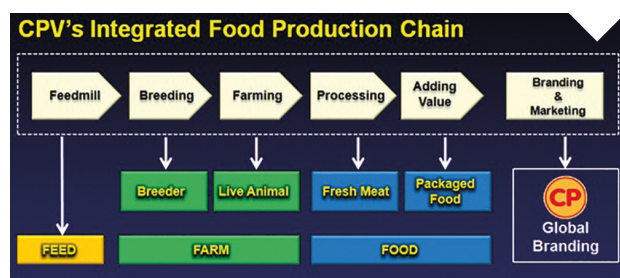
Impact of regulatory change on the spatial distribution of *trang trại* between 2010 and 2011



Change in the definition between 2010 and 2011

By the end of 2010, 145,880 farms, or 1.4% of all agricultural households were recorded as specialized holdings (GSO, 2011). The number of livestock farms increased from 1,700 in 2001 to over 23,500 in 2010. In 2011, MARD decided to change the legal definition of commercial farms. The thresholds were raised to limit the number of commercial farms. The government in effect wished to allocate them grants and agricultural land and sought to reduce the number of beneficiaries. In 2010, Vietnam had more than 145,000 *trang trại*; in 2011, there were just 20,100. Compared to other types of production, livestock farms were relatively less affected by this new definition. The number of commercial livestock farms remained 6,267 in 2011, accounting for 1/3 of all commercial farms.

Concept of integrating value chains and contracting farms presented by the firm Charoen Pokphand (CP)



© CP (2017)

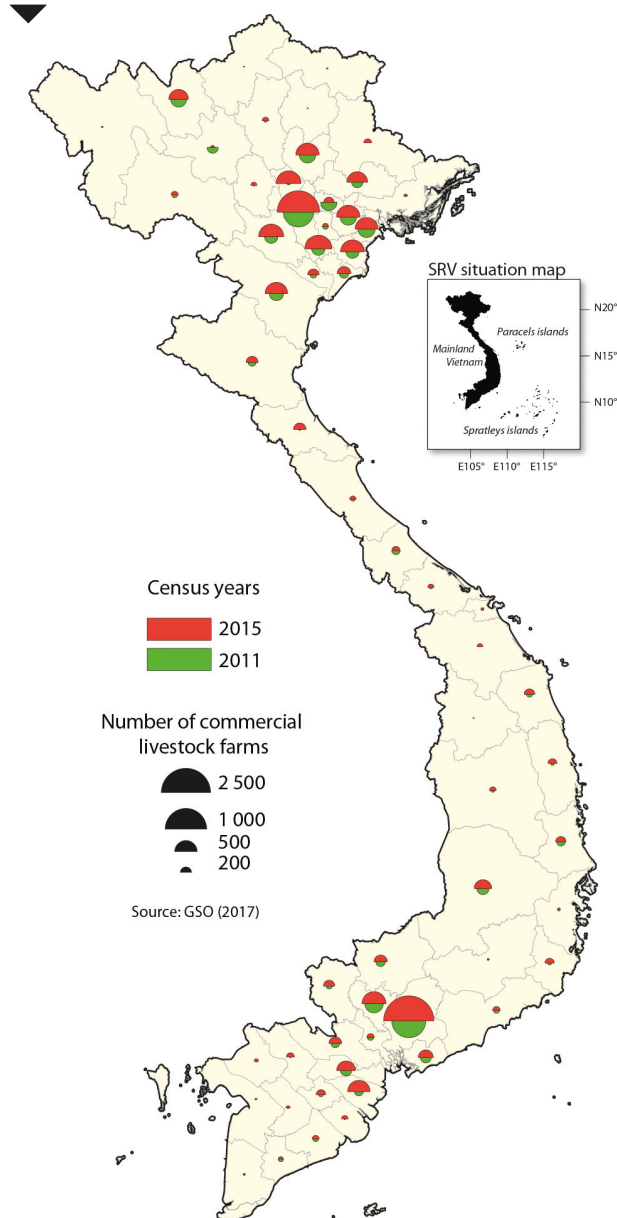
Livestock farms a majority

Since 2011, the majority of *trang trại* have been commercial livestock farms. Vietnam's entire financial system of agriculture banks is redirecting funding streams. State grants are being directed first and foremost to this category. The agriculture credit ceiling stipulated by law is higher for commercial farms than for family farms. Commercial farms are the first to benefit from funding. Access to land lots has been simplified for livestock producers. When development programs are implemented, commercial farms are the first beneficiaries.

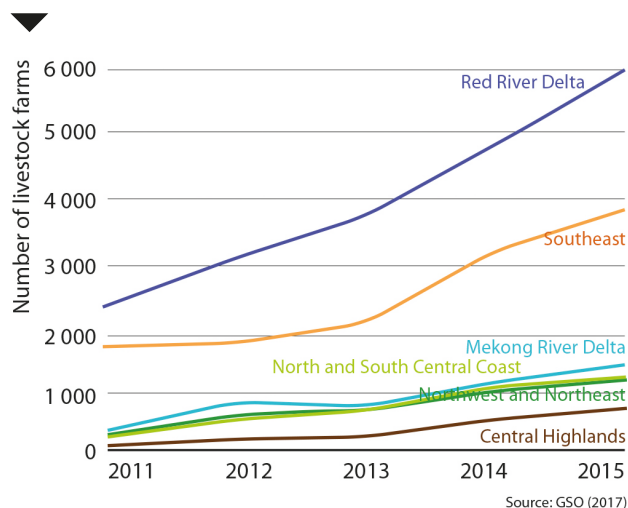
Livestock farms: a regional specialization

Over half of the country's commercial farms are in the Red River Delta, while the Southeast region accounts for only one-third of the total. Livestock farms largely predominate in the north of the country and represent between 75 and 100% of the commercial farms. In the south, the situation is more varied, with the presence of perennial crop and aquaculture farms. Around Ho Chi Minh City, livestock farms are largely over represented, in particular in the provinces of Đồng Nai, Mỹ Tho and Bến Tre. In these three provinces, the size of livestock farms surpasses the national average.

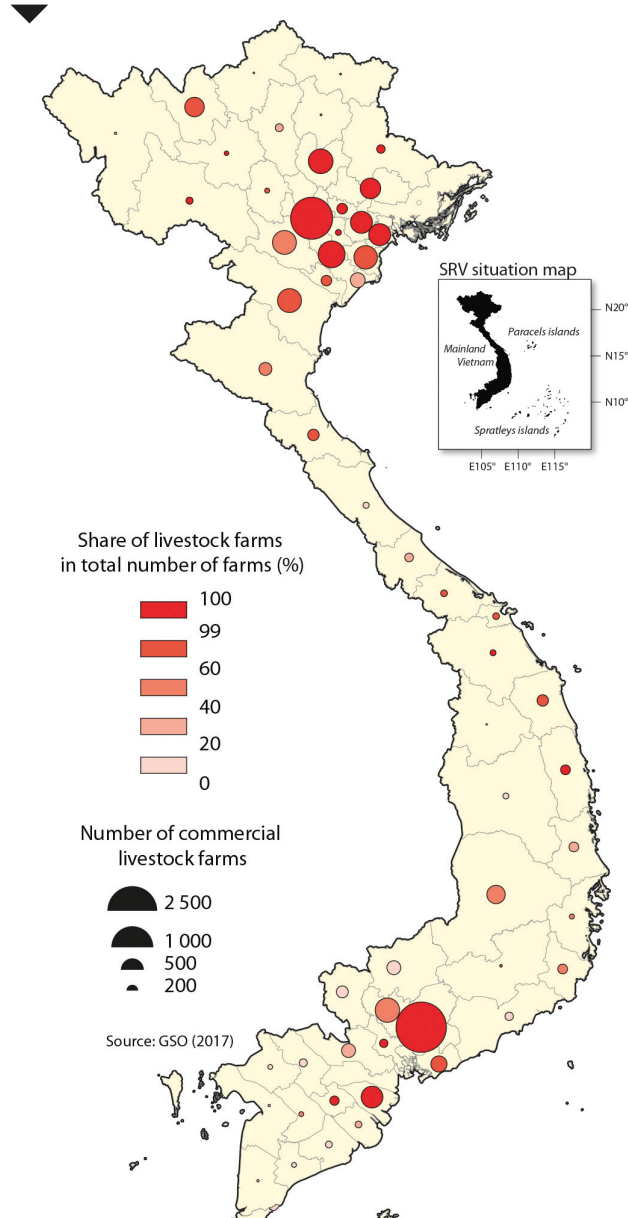
Evolution in the number of livestock farms by agroecological region since 2011



Evolution in the number of livestock farms between 2011 and 2015



Share of livestock farms in the total number of farms per province in 2015



Meat production: improving productivity

Local meat production located near markets

The volume of meat produced by province can be understood first by the local population present, and then by the pig herd in the province. This rule has one exception: Ho Chi Minh City. The largest city in the country has almost entirely relocated slaughterhouses to the outskirts of the city, notably in the province of Đồng Nai. This phenomenon also is occurring in the north around Hanoi. Production growth is negative there while growth rates in the surrounding provinces are positive. This situation indicates that meat production is gradually moving out of large metropolitan areas.

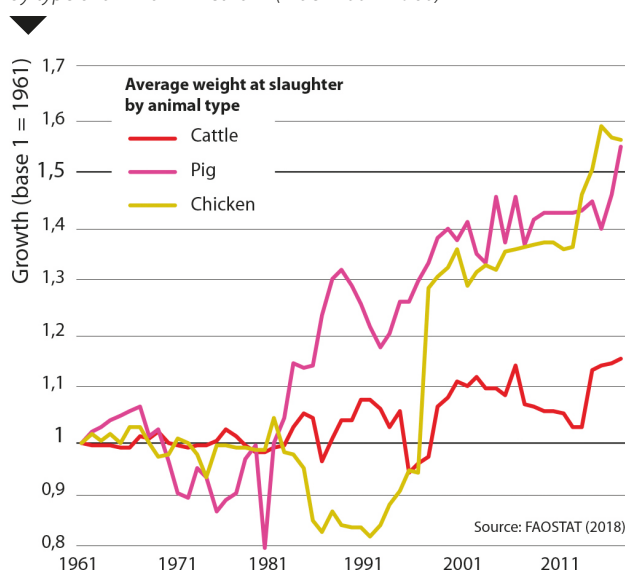
Strong localized growth

Between 2010 and 2014, the growth rates in the provinces of Đồng Nai, Bình Dương, Bà Rịa and Bình Phước varied between 25% to over 50%. It was the same for the provinces of Phú Thọ, Thái Nguyên and especially Lạng Sơn. These rates are an indicator of the gradual relocation of production towards more outlying regions. The government is investing in modern slaughterhouses that meet international standards. To control production costs, these new facilities must be industrial sized, which raises questions regarding their location. Regions on the outskirts of large cities (10 km away) are convenient areas for the industrialization of the sector.

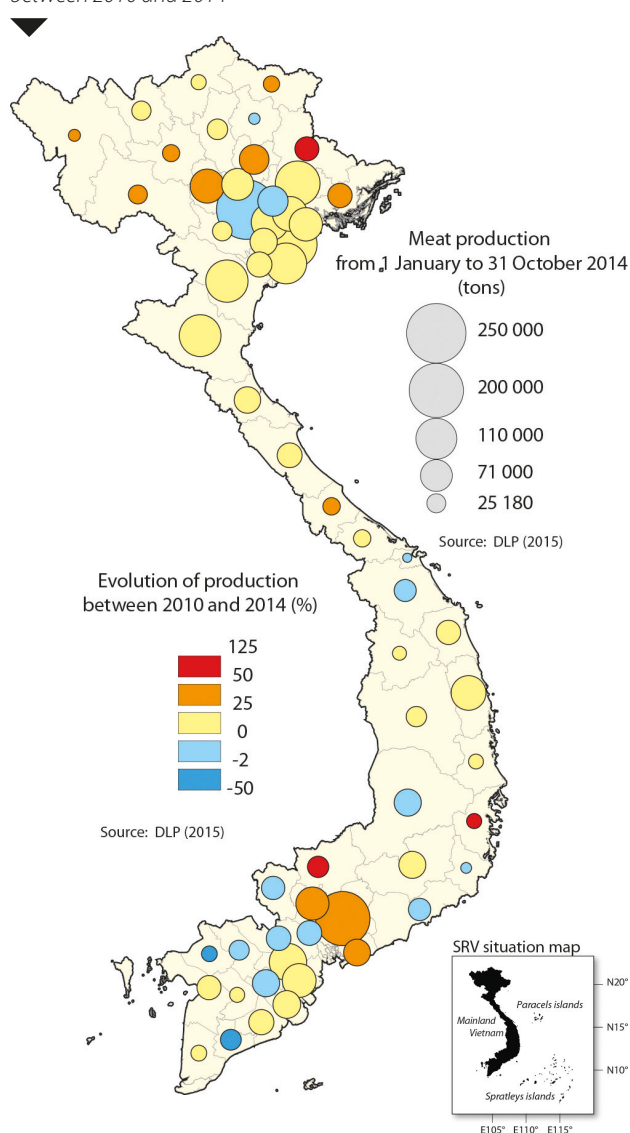
Improved yield

The evolution of the average weight at slaughter of monogastric animals has increased since 1960. Chickens have gone from an average weight of 900 g to over 1.6 kg, while the weight of pigs at slaughter has increased by more than 27 kg compared to 1960. The carcass weight of animals has increased considerably since the 2000s, notably thanks to the evolution of animal genetics with the introduction of new 'exotic' species. The second contributing factor is the evolution of production and nutrition processes. The production of cattle and buffalo remains more traditional. Productivity gains therefore are lower compared to sectors which are industrializing.

Evolution of average weight at slaughter by type of animal in Vietnam (index 100 = 1960)



Meat production in 2014 and evolution of production between 2010 and 2014



LIFSAP pig meat market in Đồng Nai

